

A REVIEW OF SURGICAL EMERGENCIES OF SUSHRUTA SAMHITA

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ABSTRACT

Sushruta is a pioneer of Indian Surgery and *Sushruta Samhita* is only complete book, which deals with the problems of practical surgery, especially emergency conditions. *Acharya Sushruta* has described various surgical emergencies namely; *Sadyo vrana*, *Asthibhagna*, Haemorrhage, *Ashmari*, *Chidrodara*, *Moodgarbh*, *Bhadgudodara*, and their management. Even though, the clear guidelines for various emergencies was described by *Acharya Sushruta*, but over the due course of time these practices have become obsolete. Surgery is highly developed in contemporary science and emergency management has emerged as a super speciality stream, but still there are certain conditions where they fall short. So, a review of management of surgical emergency according to *Acharya Sushruta* is being attempted, which may help to find solutions for future.

Keywords: *Sushruta Samhita*, emergency, *Sushruta*

INTRODUCTION

Sushruta Samhita is the earliest known authoritative treatise on Ayurveda¹. It is the most ancient document in the field of Surgery not merely of India, but also of the whole world. Due to its contribution in the field of Surgery, *Acharya Sushruta*, the writer of *Sushruta Samhita* is acknowledged as the “Father of Surgery”. *Sushruta’s* original text discusses in an elaborate manner about a myriad of surgical methods that include how to handle different emergency conditions like *Sadyovrana*, *Asthibhagna*, *Ashmari*, *Chidrodara*, *Moodgarbh* etc. The reason why *Shalya Tantra* was quite popular as it could provide fast relief compared to the slower process of recovery from herbs or medicines. The most popular physi-

cian of Ayurvedic medicine, *Charaka*, also recommended *Shalya Tantra* to treat certain diseases that need immediate attention. According to *Sushruta*, it is best to use *Shalya Tantra* when the problem with the body is beyond merely medicinal repair. He advised to use *Shalya Tantra* in various emergency conditions. The treatment not only gives faster relief to the person suffering but is also beneficial in circumstances when the internal medicine fails to cure. In the present time, though modern surgery has developed a lot but the basic procedures used in major conditions remained same.

MATERIAL AND METHODS

All the references have been collected and compiled from *Sushruta Samhita* and their available commentaries.

We have also referred the modern text books of Surgery like Bailey and Love, K. Das, Primary Surgery vol-1 (Oxford Medical Publication) and similar other books.

Observation

Emergency Surgical procedures are widely described in relation to different conditions in *Sushruta Samhita*. Importance of emergency operative procedures was well recognized and it was said that avoidance of some emergency surgeries may have fatal outcome. Some examples of emergency management are as follows:

Management of *Sadhyo Vrana* (Traumatic wound)

Acharya Sushruta has mentioned the six² varieties of accidental injuries named as; 1. *China* (excised) 2. *Bhinna* (incised) 3. *Viddha* (punctured) 4. *Kshata* (lacerated) 5. *Picchita* (crushed) 6. *Grishta* (abrasion). As the serious injury on vital organ may lead to death of the patient, *Acharya Sushruta* mentioned *Shashti upakramas*³ (sixty therapeutic procedures) to cure the *Agantuja vrana* which also includes *Shodhana* (purification), *Ropana* (healing), *Bandhana* (bandaging), *Seevana* (suturing) etc.

Acharya Sushruta described the various types of dressing and dressing materials for the first time to cover the wound at different sites of body. The 14 types of bandages and their application are the unique features of *Sushruta*⁴. During the bandaging the use of cotton pad to secure the wound from friction is the original theme of *Sushruta* and it is still in practice. The Suture material of absorbable / non-absorbable and synthetic / natural was first described by *Sushruta*. According to *Sushruta*, bark of specific plants, silk, hair, tendon are the suture materials⁵. He also used black ants (*Lasius niger*) during the suturing of rupture intestine⁶ which is probably the first

reference of absorbable type of suture material in history of medicine.

Asthi- Sandhi Bhagna Chikitsa (Fracture and displacement of bone and its management)

Sushruta has given classification of the bones; varieties of dislocation of joints (*Sandhimukta*⁷) and fracture of shaft (*Kandabhagna*⁸) are given systematically. He has given the detail of six types of dislocations and twelve varieties of fractures. He gave the principles of fracture treatment, viz., tight bandage, traction, manipulation, appositions and stabilization⁹. The same method is still practiced in modern orthopedics.

Arrest of Bleeding

Sushruta has pointed out four methods to stop the bleeding; naming as, 1. *Sandhan*, 2. *Skandana*, 3. *Dahan*, 4. *Pachana*¹⁰. In the *Sandhan*, steps he had advised to make opposition of the cut edges with stitches; in *Skandana*, to use cold things, like snow or ice which causes thickening of blood by coagulation; in the *Dahan*, by cauterization of vessels with *kshara* (chemicals) or *Agni* (heat); in *Pachana*, application of styptic decoctions, to contract the vessels locally. The technique to use the *Agni*, to stop the bleeding during surgery, is the original concept of *Sushruta*, which is later modified by the modern scientist to develop in the form of electric cautery. Apart from the use of cautery, he explained use of astringent herbs through local and oral administration, which is similar to conventional styptic drugs of present era.

Ashmari Chikitsa (Treatment of urinary stone)

Acharya Sushruta was well aware of the urinary stones, their varieties; the anatomy of urinary bladder, along with its relations is well recorded in chapter '*Ashmarichikitsopakramah*' (Chapter on urinary stones). *Acharya Sushruta* considered *Ashmari* as one of the emergency condition, which once not treated successfully may lead to the death of the patient¹¹. So he elaborated the detail description of

methods of extraction (by perineal lithotomy), and operative complications and post operative wound management, which may be the first reference of surgical management of calculus in history of surgery. The extraction of stone from the urinary bladder, by pushing the stone upward through inserting the finger in rectum, is still helpful in operation of vesical calculus.

Chidrodara and its Management

In operations of *Chidrodara*¹² (intestinal perforation), the anastomosis of intestine, by clinching the head of black ant, is the basic idea of *Sushruta*, is the best example of usage of biological substance as absorbable suture material. This is still useful in modification form, like in place of black ant we use absorbable suture, like catgut. This signifies the concept of absorbable suture material in gut repair, was known to ancient Indian surgeons, long back before the invention of catgut.

Replacement of Blood Volume

In case of perforation, or piercing of any bodily *kosthas*, attended with excessive haemorrhage or bleeding, the patient was made to drink (a portion of animal) blood¹³, was the concept of *Acharya Sushruta*, which later established as blood transfusion.

Moodgarbh Management

It is also considered as a medical emergency, where saving of mother's life is important, when foetus is dead¹⁴. *Acharya Sushruta's* management of moodgarbh is somehow similar to the procedure of caesarian section¹⁵ of modern era. Caesarian section is more advanced technique, and can save life of both mother and child. The application of the forceps in cases of difficult labour and other obstetric operations, involving the destruction and mutilation of the child, such as craniotomy, were first systematically described in the *Sushruta Samhita*. *Sushruta*, who advocates Caesarean section in hopeless cases of obstruction, lays down that, the instrument should be employed only in those cases where the proportion between the child and the maternal passage is so

defective that medicated plasters, fumigations, etc are not sufficient to effect a natural delivery.

Badhgudodara Management

In intestinal obstruction, after proper examination of cause of obstruction— stone, hairs, faeces or other material are removed by making an incision below the umbilicus on left side, leaving four finger breadths from the central line, and four finger breadth of intestine, is taken out and reinserting it into its normal position, following suturing¹⁶, is the concept of *Acharya Sushruta* which is in practice today also as laparotomy.

SandhanKarma

Plastic surgery is a specialized branch of surgery, devoted to the treatment of deformities of face and other parts of body. The importance of plastic surgery is, to restore the appearance and function of parts of body destroyed or damaged by disease or injury. The plastic operations of otoplasty and rhinoplasty are described in *Sushruta Samhita*.

Dakodara (Ascitis) Management

Vedhan karma i.e. tapping is performed. *Vedhan* is done below left lateral to umbilicus, (4 angula from line of hair) with the help of *Vrihimukha shastra* (trocher), to the depth of thickness of the centre of thumb, and a Nadi (canula) is fixed to the trocher for removing fluid, and abdomen is bandaged tight after that. All fluid should not be drained in one day itself, as it will lead to complications, was mentioned clearly by *Sushruta*¹⁷, which is applicable today also.

Management of Dagdh Vranas(Burns)¹⁸

Sushruta has divided burns into four types i.e. *Plushta*, *Durdaghda*, *Samyak daghda* and *Atidaghda*; and has given a detailed description of their symptoms according to the types along with the management like *Sheet Aalepa*, use of *Ghrit* and honey over the wound, which is very much similar to the concept, which is applied in modern science like—cleaning of wound with antiseptic agent, use of silver sulfadiazine cream, 1% silver nitrate, tangential excision followed by grafting¹⁹.

Management of Pain

The *Sushruta* was the first person, who has used the alcohol²⁰ to alleviate the pain during surgery. He had also used the *Bhanga*²¹ (*Cannabis sativa*) during the surgery. The knowledge of alleviating the pain during the surgery was started from *Sushruta* and later this knowledge flourishes by modern surgeons, to establish it as a separate branch of medical science, known as Anesthesiology.

DISCUSSION

As *Sushruta Samhita* is the main classical text book related to *Shalya Tantra*, so the surgical disorders including emergency conditions, which require surgical management e.g. *Sadyo vrana*, *Asthibhagna*, Haemorrhage, *Ashmari*, *Chidrodara*, *Moodgarbh*, *Bhadgudodara* etc. are described in details in this *Samhita*. The types of *Sadyo-Vrana* (Traumatic Wound) are the six, which are unchanged in the Modern textbook of Surgery. The management of these wounds requires immediate attention of Surgeon as it is already shown by *Sushruta*. The *chikitsa* of *Asthi* and *Sandhi Bhagna* was described by *Sushruta* under the heading of *Bhagna*. He had kept both the *Sandhi Bhagna* and *Asthi Bhagna* (*Kanda Bhagan*) in a single heading. The signs and symptoms are still relevant while their basic principles of management are remained unchanged even these days like traction, manipulation, apposition, and stabilization. The newer techniques have been added in modern orthopedic surgery but without intervening the basic concepts of *Sushruta's* views. The technique to use the *Agni*, to stop the bleeding during Surgery is the original concept of *Sushruta* which is later modified by modern scientist to develop in the form of electric cautery. The technique for perineal lithotomy for the vesical calculus is no more relevant now but the new technique of lithotomy is the advancement of perineal technique. In the operation of *Chidrodara*, the anastomosis of intestine by clinching the head of the black ant is the basic idea of *Sushruta* and is the best example of

usage of biological substance as absorbable suture material. This is still useful in modified form like in the place of black ant we use the absorbable suture material in gut repair was known to ancient Indian surgeons long back before the invention of catgut etc. and we take pride in saying that, by the methods recommended in the *Sushrut Samhita*, patients were successfully treated in past. In the present time, though modern surgery has developed a lot, but the basic procedures used in majority of conditions remains the same.

CONCLUSION

Sushruta Samhita is a beautiful composition of *Acharya Sushruta*, with sequential arrangement and detailed description of the topics in form of verses. The above discussion is very exemplary and is just a glimpse of the universal approach of ayurvedic *Shalya Chikitsa* and specifically, its contribution in the field of surgical emergencies. *Acharya Sushruta* has covered every branch of medical science, but has given more emphasis on surgery. This is why *Sushruta* is considered truly as the "Father of Surgery". It is extremely essential that we put his principles into practice and preserve the dignity of our noble profession. That would be the ideal tribute to this legendary figure and our contribution to future generations.

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